

CLAIMS

What is claimed is:

1. A marking system comprising:

a layer that is applied over a substrate, said layer being transparent or substantially transparent in a non-stimulated state, said layer becoming optically contrasting to said substrate upon the application of a stimulus; and

indicia applied over said layer, wherein said indicia comprises optically readable information.

2. A system as in Claim 1, wherein said layer is comprised of a polymer containing material, wherein said polymer containing material is transparent or substantially transparent below a lower critical solution temperature, said polymer containing material reversibly becoming non-transparent above the lower critical solution temperature.

3. A system as in Claim 1, wherein said layer is comprised of a photochromic material.

4. A system as in Claim 1, wherein said layer is comprised of a thermochromic material.

5. A system as in Claim 1, wherein said layer is comprised of material that is optically contrasting to the indicia at one or more specific wavelengths.

6. A system as in Claim 1, wherein said layer is comprised of a material that is doped with a substance to make said doped material optically contrasting upon the application of a thermal stimulus.

7. A system as in Claim 1, wherein said layer is substantially transparent in the non-stimulated state and becomes substantially non-transparent upon the application of said stimulus.

8. A system as in Claim 1, wherein said layer is comprised of a Lower Critical Solution Binary Polymer Blends and Solutions (LCSPBS) material in at least one of a liquid, a solid solution or a micro encapsulated form.

9. A system as in Claim 1, wherein said layer is comprised of hydroxypropyl cellulose and water in a micro encapsulated form.

10. A system as in Claim 1, wherein said layer is comprised of hydroxypropyl cellulose and water with a curable polymer constituent material to create a gel or a solid.

11. A system as in Claim 1, wherein said layer is comprised of color formers and comprised of a Lewis acid introduced into a polymer containing material, wherein said polymer containing material is transparent or substantially transparent below a lower critical solution temperature, said polymer containing material reversibly becoming substantially non-transparent above the lower critical solution temperature.

12. A system as in Claim 1, wherein said layer is comprised of an optical phase change material that is responsive to a change in ambient temperature.

13. A system as in Claim 1, wherein said layer is affixed to said substrate through a method comprised of at least one of painting, spraying, rolling and use of an intermediate transfer mechanism.

14. A system as in Claim 1, wherein said indicia is comprised of fluorescent ink.

15. A system as in Claim 1, wherein said indicia is comprised of visible ink.

16. A system as in Claim 1, wherein said indicia is comprised of at least one optically readable data form.

17. A system as in Claim 1, wherein said indicia are transparent or substantially transparent in a non-stimulated state, and reversibly shift to an optically readable state upon the application of said stimulus.

18. A system as in Claim 17, wherein said indicia are comprised of a photochromic material

19. A system as in Claim 17, wherein said indicia are comprised of a thermochromic material.

20. A system as in Claim 17, wherein said indicia are comprised of a mixture of mutually compatible polymers, said polymer mixture being transparent or substantially transparent below a lower critical solution temperature and reversibly becoming non-transparent above the lower critical solution temperature.

21. A system as in Claim 17, wherein said indicia are comprised of phase change materials combined with amplifying media that result in laser-like action upon stimulation with laser light.

22. A system as in Claim 17, wherein said indicia are comprised of material that is optically contrasting at one or more specific wavelengths.

23. A system as in Claim 17, wherein said indicia are comprised of color formers and a Lewis acid introduced into a polymer containing material, wherein said polymer containing material is transparent or substantially transparent below a lower critical solution temperature, said polymer containing material reversibly becoming non-transparent above the lower critical solution temperature.

24. A system as in Claim 1, wherein said indicia are applied over said layer by at least one of impact printing, ink jet printing, painting, spraying, rolling and through the use of an intermediate transfer mechanism.

25. A system as in Claim 1, wherein said substrate comprises a mail piece.

26. A system as in Claim 1, wherein said stimulus is comprised of at least one of IR light, visible light, UV light, microwave energy, electrical energy, magnetic fields, acoustic energy and thermal energy.

27. A system as in Claim 1, wherein said stimulus is comprised of an increase of temperature that exceeds a lower critical solution temperature associated with said layer.

28. A system as in Claim 16, wherein said layer and said indicia are applied to a mail piece, and where said indicia comprise a sort code.

29. A thermochromic composition comprised of color formers and a Lewis acid introduced into a polymer containing material, wherein said polymer containing material is transparent or substantially transparent below a lower critical solution temperature, said polymer containing material reversibly becoming non-transparent above the lower critical solution temperature.

30. A method for processing mail, comprising:

providing a mail piece requiring marking;

identifying an address to which said mail piece is to be delivered;

encoding address information for said mail piece;

affixing a layer of material onto said mail piece, said layer being transparent or substantially transparent in a non-stimulated state, said layer reversibly becoming non-transparent upon the application of a stimulus; and

affixing a marking upon said layer, wherein said marking carries the encoded address information.

31. A method for processing mail, comprising:

providing a mail piece for sorting, the mail piece having been marked with a transparent or substantially transparent layer and indicia recording information related to the delivery of the mail piece;

subjecting said layer and indicia to appropriate stimulus to create optical changes in the appearance of at least said layer;

detecting information recorded in said indicia;

interpreting information recorded in said indicia; and

providing said information to a mail sorting system.

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